

CLAIMS:

What is claimed is:

1. A method for managing a utility service, the method comprising the steps of:
analyzing relationship information representing a relationship of availability of the
5 utility service and consumption of the utility service; and,
sending a message over a data network to at least one region of a utility service
network to thereby modify utility service consumption based on the analysis of the
relationship information.
- 10 2. The method of claim 1, wherein the message instructs at least one region
permitting increased power consumption.
3. The method of claim 1, wherein the message instructs at least one region
permitting decreased power consumption.
4. The apparatus of claim 1, wherein the message modifies permitted power
consumption for aggregated regions.
- 15 5. The method of claim 1, wherein the data network is the Internet.
6. The method of claim 1, wherein the data network includes at least one of a
wireless link and a Bluetooth connection.
7. The method of claim 1, wherein the data network contains at least one link
sharing physical wiring with the utility service network.
- 20 8. The method of claim 1, wherein sending the message to at least one region
includes broadcasting the message to multiple regions.

9. The method of claim 1, wherein sending the message to at least one region includes transmitting the message as a multicast message to multiple regions.
10. The method of claim 1, wherein each region of the class of service utility service network is classified into a class of service.
- 5 11. The method of claim 10, wherein sending the message includes broadcasting the message to regions in the utility service network having a given class of service.
12. The method of claim 10, wherein sending the message includes broadcasting the message to regions having a given class of service within a defined geographic area.
13. The method of claim 1, wherein the utility service is providing electricity.
- 10 14. The method of claim 1, wherein at least one region is one of a single power consuming device, a subset of a plurality of power consuming devices, a portion of the utility service network in a geographic region, and a consumption management service provider.
- 15 15. The method of claim 1, wherein the message instructs at least one region to modify at least one term or condition of sale.
16. The method of claim 15, wherein the term or condition of sale is at least one of price and a pricing method.
17. The method of claim 15, wherein modifying at least one term or condition of sale includes varying the price of the utility service based on a rate of consumption of the utility service.
- 20 18. The method of claim 1, further comprising:
analyzing historical data relating conditions of sale of the utility service to

consumption levels of the utility service; and
 generating the message based on the analysis of the relationship information and
 the analysis of the historical data.

19. A system for managing a utility service, comprising:
 - 5 means for analyzing relationship information representing a relationship of
 availability of the utility service and consumption of the utility service; and
 means for sending a message over a data network to at least one region of a utility
 service network to thereby modify utility service consumption based on the analysis of
 the relationship information.
- 10 20. The system of claim 19, wherein the message instructs at least one region granting
 permission for increased power consumption.
21. The system of claim 19, wherein the message instructs at least one region granting
 permission for decreased power consumption.
22. The system of claim 19, wherein the message modifies permitted power
 15 consumption for aggregated regions.
23. The system of claim 19, wherein the data network is the Internet.
24. The system of claim 19, wherein the data network includes at least one of a
 wireless link and a Bluetooth connection.
25. The system of claim 19, wherein the data network contains at least one link
 20 sharing physical wiring with the utility service network.
26. The system of claim 19, wherein the means for sending the message to at least one
 region includes means for broadcasting the message to multiple regions.

27. The system of claim 19, wherein means for sending the message to at least one region includes means for transmitting the message as a multicast message to multiple regions.

28. The system of claim 19, wherein each region of the utility service network is
5 classified into a class of service.

29. The system of claim 28, wherein the means for sending the message includes means for broadcasting the message to regions in the utility service network having a given class of service.

30. The system of claim 28, wherein the means for sending the message includes
10 means for broadcasting the message to regions having a given class of service within a defined geographic area.

31. The system of claim 19, wherein the utility service is providing electricity.

32. The system of claim 19, wherein at least one region is one of a single power
15 consuming device, a subset of a plurality of power consuming devices, a portion of the utility service network in a geographic region, and a consumption management service provider.

33. The system of claim 19, wherein the message instructs at least one region to modify at least one term or condition of sale.

34. The system of claim 33, wherein the term or condition of sale is at least one of price
20 and a pricing method.

35. The system of claim 33, wherein modifying at least one term or condition of sale

includes varying the price of the utility service based on a rate of consumption of the utility service.

36. The system of claim 19, further comprising:
 means for analyzing historical data relating conditions of sale of the utility service
 5 to consumption levels of the utility service; and
 means for generating the message based on the analysis of the relationship
 information and the analysis of the historical data.

37. A computer program product in a computer readable medium for managing a utility service, comprising:

10 first instructions for analyzing relationship information representing a relationship
 of availability of the utility service and consumption of the utility service; and
 second instructions for sending a message over a data network to at least one
 region of a utility service network to thereby modify utility service consumption based on
 the analysis of the relationship information.

15 38. The computer program product of claim 37, wherein the message instructs at least
 one region permitting increased power consumption.

39. The computer program product of claim 37, wherein the message instructs at least
 one region permitting decreased power consumption.

20 40. The computer program product of claim 37, wherein the message modifies
 permitted power consumption for aggregated regions.

41. The computer program product of claim 37, wherein the second instructions
 include instructions for broadcasting the message to multiple regions.

42. The computer program product of claim 37, wherein the second instructions include instructions for transmitting the message as a multicast message to multiple regions.

5 43. The computer program product of claim 37, wherein each region of the utility service network is classified into a class of service.

44. The computer program product of claim 43, wherein the second instructions include instructions for broadcasting the message to regions in the utility service network having a given class of service.

10 45. The computer program product of claim 43, wherein the second instructions include instructions for broadcasting the message to regions having a given class of service within a defined geographic area.

46. The computer program product of claim 37, wherein the utility service is providing electricity.

15 47. The computer program product of claim 37, wherein at least one region is one of a single power consuming device, a subset of a plurality of power consuming devices, a portion of the utility service network in a geographic region, and a consumption management service provider.

48. The computer program product of claim 37 wherein the message instructs at least one region to modify at least one term or condition of sale.

20 49. The computer program product of claim 48 wherein the term or condition of sale is at least one of price and a pricing method.

50. The computer program product of claim 48, wherein modifying at least one term

or condition of sale includes varying the price of the utility service based on a rate of consumption of the utility service.

51. The method of claim 1, further comprising:
 third instructions for analyzing historical data relating conditions of sale of the
 5 utility service to consumption levels of the utility service; and
 fourth instructions for generating the message based on the analysis of the
 relationship information and the analysis of the historical data.
52. A method of managing consumption of a utility, comprising:
 receiving a message from a utility service provider;
 10 generating at least one message for at least one region of a utility service network,
 the at least one message instructing a region to modify utility consumption by the at least
 one region; and
 sending the at least one message to the at least one region.
53. The method of claim 52, wherein the at least one message instructs the at least one
 15 region to permit increased utility consumption.
54. The method of claim 52, wherein the at least one message instructs the at least one
 region to permit decreased utility consumption.
55. The method of claim 52, wherein the at least one message modifies permitted
 utility consumption for aggregated regions.
- 20 56. The method of claim 52, wherein sending the at least one message to the at least
 one region includes broadcasting the at least one message to multiple regions.
57. The method of claim 52, wherein sending the at least one message to the at least

one region includes transmitting the at least one message as a multicast message to multiple regions.

58. The method of claim 52, wherein at least one region of the utility service network is classified into a class of service.

5 59. The method of claim 58, wherein sending the at least one message includes broadcasting the at least one message to regions in the utility service network having a given class of service.

10 60. The method of claim 58, wherein sending the at least one message includes broadcasting the at least one message to regions having a given class of service within a defined geographic area.

61. The method of claim 52, wherein the utility service is providing electricity.

15 62. The method of claim 52, wherein the at least one region is one of a single power consuming device, a subset of a plurality of power consuming devices, a portion of the utility service network in a geographic region, and a consumption management service provider.

63. The method of claim 52, wherein the at least one message instructs the at least one region to modify at least one term or condition of sale.

64. The method of claim 63, wherein the term or condition of sale is at least one of price and a pricing method.

20 65. The method of claim 63, wherein modifying the at least one term or condition of sale includes varying the price of the utility service based on a rate of consumption of the utility service.

66. An apparatus for managing consumption of a utility, comprising:
means for receiving a message from a utility service provider;
means for generating at least one message for at least one region of a utility
service network, the at least one message being used to modify utility consumption by the
5 at least one region; and,
means for sending the at least one message to the at least one region.
67. The apparatus of claim 66, wherein the at least one message instructs at least one
region to increase utility consumption.
68. The apparatus of claim 66, wherein the at least one message instructs at least one
10 region to decrease utility consumption.
69. The apparatus of claim 66, wherein the at least one message modifies permitted
utility consumption for aggregated regions.
70. The apparatus of claim 66, wherein the means for sending the at least one message
15 to the at least one region includes means for broadcasting at least one message to multiple
regions.
71. The apparatus of claim 66, wherein the means for sending the at least one message
to the at least one region includes means for transmitting the at least one message as a
multicast message to multiple regions.
72. The apparatus of claim 66, wherein at least one region of the utility service
20 network is classified into a class of service.
73. The apparatus of claim 72, wherein the means for sending the at least one message
includes means for broadcasting the at least one message to regions in the utility service
network having a given class of service.

74. The apparatus of claim 72, wherein the means for sending the at least one message includes means for broadcasting the at least one message to regions having a given class of service within a defined geographic area.

75. The apparatus of claim 66, wherein the utility service is providing electricity.

5 76. The apparatus of claim 66, wherein the at least one region is one of a single power consuming device, a subset of a plurality of power consuming devices, a portion of the utility service network in a geographic region, and a consumption management service provider.

10 77. The apparatus of claim 66, wherein the at least one message instructs the at least one region to modify at least one term or condition of sale.

78. The apparatus of claim 77, wherein the term or condition of sale is at least one of price and a pricing method.

15 79. The apparatus of claim 77, wherein modifying the at least one term or condition of sale includes varying the price of the utility service based on a rate of consumption of the utility service.

80. A computer program product in a computer readable medium for managing consumption of a utility, comprising:

20 first instructions for receiving a message from a utility service provider;
second instructions for generating at least one message for at least one region of a utility service network, the at least one message being used to modify utility consumption by the at least one region; and
third instructions for sending the at least one message to the at least one region.

81. The computer program product of claim 80, wherein at least one message instructs at least one region to permit increased utility consumption.
82. The computer program product of claim 80, wherein at least one message instructs at least one region to permit decreased utility consumption.
- 5 83. The computer program product of claim 80, wherein at least one message modifies permitted utility consumption for aggregated regions.
84. The computer program product of claim 80, wherein the third instructions include instructions for broadcasting at least one message to multiple regions.
- 10 85. The computer program product of claim 80, wherein the third instructions include instructions for transmitting at least one message as a multicast message to multiple regions.
86. The computer program product of claim 80, wherein each region of the utility service network is classified into a class of service.
- 15 87. The computer program product of claim 86, wherein the third instructions include instructions for broadcasting at least one message to regions in the utility service network having a given class of service.
88. The computer program product of claim 86, wherein the third instructions include instructions for broadcasting at least one message to regions having a given class of service within a defined geographic area.
- 20 89. The computer program product of claim 80, wherein the utility service is providing electricity.

90. The computer program product of claim 80, wherein at least one region is one of a single power consuming device, a subset of a plurality of power consuming devices, a portion of the utility service network in a geographic region, and a consumption management service provider.

5 91. The computer program product of claim 80, wherein at least one message instructs at least one region to modify at least one term or condition of sale.

92. The computer program product of claim 91, wherein the term or condition of sale is at least one of price and a pricing method.

10 93. The computer program product of claim 91, wherein modifying at least one term or condition of sale includes varying the price of the utility service based on a rate of consumption of the utility service.

94. A method for managing consumption of a utility, the method comprising the steps of:
 15 receiving a message over a data network modifying permitted utility consumption of a unit; and
 implementing said message modifying permitted utility consumption to thereby modify the utility consumption of the unit.

95. A method of providing a utility service, comprising:
 20 classifying a utility consumer into a class of utility service;
 determining a current status of a utility service system; and,
 modifying delivery of the utility service to the utility consumer based on the current status of the utility service system.

96. The method of claim 95, wherein the class of service is a critical service class.

97. The method of claim 95, wherein the class of utility service is one of a plurality of classes of utility service, and wherein each of the plurality of classes of utility service have different priorities.

5 98. A method of doing business as a consumption management service provider in a utility service system, comprising:
 receiving messages from at least one utility service provider; and
 sending messages to at least one region of the utility service system.

99. The method of claim 98, wherein the messages sent to at least one region affect power consumption for that region.

10 100. The method of claim 98, wherein the messages sent to the region affects terms and conditions of sale of the utility service for that region.

101. A method for providing utility service to a customer system, comprising:
 analyzing an operation of a utility system; and,
 sending a message to the customer system changing a service parameter based on
 15 the analysis of the operation of the utility system.

102. The method of Claim 101 wherein the message sent to the customer system instructs the customer system to change the service parameter such that the customer system ceases operations.

103. The method of Claim 101 wherein the message sent to the customer system
 20 instructs the customer system to change the service parameter such that the customer system resumes operations.

104. The method of Claim 101 wherein the message sent to the customer system instructs the customer system to change the service parameter such that the customer system consumes decreased power supply.

105. The method of Claim 101 wherein the message sent to the customer system
5 instructs the customer system to change the service parameter such that the customer system consumes increased power supply.

106. The method of Claim 101 wherein the utility service auctions a class of utility service.

107. The method of Claim 106 wherein the auction is based on the amount of the
10 utility service available for each class of utility service.

108. The method of Claim 106 wherein the utility service auctions a class of utility service, wherein the auction is based on the price of the utility service for each class of utility service.

109. The method of Claim 101 wherein the class of utility service is set by a
15 predetermined price of utility service.

110. The method of Claim 101 wherein the utility service is electricity.

111. The method of Claim 101 wherein the utility service is a communications link.

112. An apparatus for providing utility service to a customer system, comprising:
 means for analyzing an operation of an utility system; and
 means for sending a message to the customer system changing a service parameter
 based on the analysis of the operation of the utility system.

5 113. A method of receiving utility service by a customer system, comprising:
 receiving a message from a utility service to change a service parameter of the
 utility service provided to a customer system; and
 changing the service parameter of the utility service supplied to the customer
 system.

10 114. The method of Claim 113 wherein the message received by the customer system
 instructs the customer system to change the service parameter, wherein the customer
 system ceases operations.

115. The method of Claim 113 wherein the message received by the customer system
 instructs the customer system to change the service parameter, wherein the customer
 15 system resumes operations.

116. The method of Claim 113 wherein the message received by the customer system
 instructs the customer system to change the service parameter, wherein the customer
 system consumes decreased power supply.

117. The method of Claim 113 wherein the message received by the customer system
 20 instructs the customer system to change the service parameter, wherein the customer
 system consumes increased power supply.

118. The method of Claim 113 wherein the customer system negotiates a class of utility service with the utility service.

119. The method of Claim 113 wherein the customer system negotiates a class of utility service with the utility service, wherein the negotiation is based on the amount of
5 the utility service available for each class of utility service.

120. The method of Claim 113 wherein the customer system negotiates a class of utility service with the utility service, wherein the negotiation is based on the price of the utility service for each class of utility service.

121. The method of Claim 113 wherein the customer system participates in an auction
10 for a class of utility service.

122. The method of Claim 121 wherein the auction is based on the amount of the utility service available for each class of utility service.

123. The method of Claim 121 wherein the auction is based on the price of the utility service for each class of utility service.

124. The method of Claim 118 wherein the class of utility service is set by a predetermined amount of utility service.
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125. The method of Claim 118 wherein the class of utility service is set by a predetermined price of utility service.

126. The method of Claim 113 wherein the utility service is electricity.
127. The method of Claim 113 wherein the utility service is a communications link.
128. An apparatus for receiving utility service by a customer system, comprising:
 means for receiving a message from a utility service to change a service parameter
 5 of the utility service provided to a customer system;
 means for accepting the message from the utility service; and,
 means for changing the service parameter of the utility service supplied to the
 customer system.
129. A method of doing business for providing utility service, comprising:
 10 analyzing an operation of an utility system;
 associating a customer system with a class of utility service;
 sending a message to the customer system changing the service parameter of the
 utility service provided to the customer system in response to a change in the operation of
 the utility system.
130. The method of Claim 129 wherein the association of a customer system with a
 15 class of utility service is dynamic.
131. The method of Claim 129 wherein the association of a customer system with a
 class of utility service may be changed unilaterally by the utility service.
132. The method of Claim 129 wherein the change in the class of utility service
 20 provided to the customer system is based on a cost increase in utility service.

133. The method of Claim 129 wherein the change in the class of utility service provided to the customer system is based on a cost decrease in utility service.

134. The method of Claim 129 wherein the change in the class of utility service provided to the customer system is based on an increase in the available amount of utility
5 service.

135. The method of Claim 129 wherein the change in the class of utility service provided to the customer system is based on a decrease in the available amount of utility service.

136. The method of Claim 129 wherein the change in the class of utility service
10 provided to the customer system is based on auctioning an amount of utility service.

137. The method of Claim 129 wherein the class of utility service has pricing which depends on the amount of the utility service demanded in aggregate by the utility system.

138. The method of Claim 129 wherein the class of utility service has pricing achieved by auction.

15 139. The method of Claim 129 wherein the customer system is represented in the auction by a policy.

140. The method of Claim 129 wherein the association with a class of utility service is based on the time of day.

141. The method of claim 129 wherein the association with a class of utility service is based on price of goods.

142. The method of claim 129 wherein the association with a class of utility service is based on optimization.

5 143. The method of Claim 129 wherein the optimization is on behalf of the user.

144. The method of Claim 129 wherein the customer system determines the class of utility service it will receive.

145. The method of Claim 129 wherein the customer system negotiates the class of utility service it will receive.

10 146. The method of Claim 129 wherein the class of utility service depends on the customer system identification.

147. The method of Claim 129 wherein the customer system identifies itself to the utility service provider with at least one identification address.

15 148. A method for providing utility service comprising:
 receiving an instruction to modify consumption of the utility service,
 identifying a class of utility service for a customer system connected to the utility system; and
 sending a message to the customer system changing the class of utility service provided to the customer system to thereby modify consumption of the utility service.

149. The method of Claim 148 wherein the message sent to the customer system instructs the customer system to accept a different class of utility service such that the customer system ceases operations.

150. The method of Claim 148 wherein the message sent to the customer system
5 instructs the customer system to accept a different class of utility service such that the customer system resumes operations.

151. The method of Claim 148 wherein the message sent to the customer system instructs the customer system to accept a different class of utility service such that the customer system consumes decreased power supply.

10 152. The method of Claim 148 wherein the message sent to the customer system instructs the customer system to accept a different class of utility service such that the customer system consumes increased power supply.

153. The method of Claim 148 wherein the service provider facilitates auctioning a class of utility service.

15 154. The method of Claim 153 wherein the auction is based on the amount of the utility service available for each class of utility service.

155. The method of Claim 153 wherein the auction is based on the price of the utility service for each class of utility service.

156. The method of Claim 148 wherein the class of utility service is set by a predetermined price of utility service.

157. The method of Claim 148 wherein the utility service is electricity.

5 158. The method of Claim 148 wherein the utility service is a communications link.

159. A computer program product for providing utility service to a customer system, comprising:

first instructions for analyzing an operation of an utility system;

10 second instructions for identifying a class of utility service for a customer system connected to the utility system; and,

third instructions for sending a message to the customer system changing the class of utility service provided to the customer.

160. The computer program product of Claim 159 further comprising:

15 fourth instructions for changing the class of utility service provided to the customer system based on the service provider's analysis of the operation of the utility system.

161. The computer program product of Claim 159 further comprising:

fifth instructions for instructing the customer system to accept a different class of utility service such that wherein the customer system should cease operations.

20 162. The computer program product of Claim 159 further comprising:

sixth instructions for instructing the customer system to accept a different class of

utility service, wherein the customer system resumes operations.

163. The computer program product of Claim 159 further comprising:
seventh instructions for instructing the customer system to accept a different class
of utility service, wherein the customer system consumes decreased power supply.

5 164. The computer program product of Claim 159 further comprising:
eighth instructions for instructing the customer system to accept a different class
of utility service, wherein the customer system consumes increased power supply.

165. The computer program product of Claim 159 further comprising:
ninth instructions for facilitating an auction of the class of utility service, wherein
10 the auction is based on the amount of the utility service available for each class of utility
service.

166. The computer program product of Claim 159 further comprising:
tenth instructions for facilitating an auction of the class of utility service.

167. The computer program product of Claim 166 wherein the auction is based on the
15 price of the utility service for each class of utility service.

168. The computer program product of Claim 159 further comprising:
eleventh instructions for facilitating an auction of the class of utility service such
that the auction is based on the availability of the utility service for each class of utility
service.

169. The computer program product of Claim 159 further comprising:
 twelfth instructions for instructing a customer system to accept a different class of utility service, wherein the class of utility service is set by a predetermined price of utility service.

5 170. The computer program product of Claim 159 further comprising:
 thirteenth instructions for assigning the customer system a new level of utility service, wherein the class of utility service is set by a negotiated amount of utility service.

171. A computer program product for receiving utility service by a customer system, comprising:
 10 first instructions for receiving a message from a utility service to change a class of utility service to a customer system;
 second instructions for accepting the message from the utility service; and,
 third instructions for changing the class of utility service supplied to the customer system.

15 172. The computer program product of Claim 171 further comprising:
 fourth instructions for instructing the customer system to accept a different class of utility service, wherein the customer system ceases operations.

173. The computer program product of Claim 171 further comprising:
 fifth instructions for instructing the customer system to accept a different class of
 20 utility service, wherein the customer system resumes operations.

174. The computer program product of Claim 171 further comprising:

sixth instructions for instructing the customer system to accept a different class of utility service, wherein the customer system consumes decreased power supply.

175. The computer program product of Claim 171 further comprising:
seventh instructions for instructing the customer system to accept a different class
5 of utility service, wherein the customer system consumes increased power supply.

176. The computer program product of Claim 171 further comprising:
eighth instructions for instructing the customer system to negotiate a class of
utility service with the utility service.

177. The computer program product of Claim 171 further comprising:
10 ninth instructions for instructing the customer system to negotiate a class of utility
service with the utility service.

178. The computer program product of Claim 171 further comprising:
tenth instructions for instructing the customer system to negotiate a class of utility
service with the utility service, wherein the negotiation is based on the price of the utility
15 service for each class of utility service.

179. The computer program product of Claim 171 further comprising:
eleventh instructions for instructing the customer system to participate in an
auction for a class of utility service.

180. The computer program product of Claim 171 further comprising:
20 twelfth instructions for instructing the customer system to participate in an auction

for a class of utility service, wherein the auction is based on the price of the utility service for each class of utility service.

181. The computer program product of Claim 171 further comprising:

thirteenth instructions for instructing the customer system to accept a different
 5 class of utility service, wherein the class of utility service is set by a predetermined amount of utility service.

182. The computer program product of Claim 171 further comprising:

fourteenth instructions for instructing the customer system to accept a different
 class of utility service, wherein the class of utility service is set by a predetermined price
 10 of utility service.

183. A computer program product for providing utility service comprising:

first instructions for receiving an instruction to modify consumption of the utility
 service;
 15 second instructions for identifying a class of utility service for a customer system connected to the utility system; and
 third instructions for sending a message to the customer system changing the class of utility service provided to the customer system to thereby modify consumption of the utility service.

20 184. The computer program product of Claim 183 further comprising:

fourth instructions for changing the class of utility service provided to the customer system such that the customer system ceases operations.

185. The computer program product of Claim 183 further comprising:
fifth instructions for changing the class of utility service provided to the customer system such that the customer system resumes operations.
186. The computer program product of Claim 183 further comprising:
5 sixth instructions for changing the class of utility service provided to the customer system such that the customer system consumes decreased power supply.
187. The computer program product of Claim 183 further comprising:
seventh instructions for changing the class of utility service provided to the customer system such that the customer system consumes increased power supply.
- 10 188. The computer program product of Claim 183 further comprising:
eighth instructions for auctioning the class of utility service provided to the customer system such that the auction is based on the amount of the utility service available for each class of utility service.
189. The computer program product of Claim 183 further comprising:
15 ninth instructions for auctioning the class of utility service provided to the customer system such that the auction is based on the price of the utility service for each class of utility service.
190. The computer program product of Claim 183 further comprising:
tenth instructions for changing the class of utility service provided to the customer
20 system, wherein the class of utility service is set by a predetermined price of utility service.